

solid state communications

an international journal

volume 82



Pergamon Press
Oxford · New York · Seoul · Tokyo

SOLID STATE COMMUNICATIONS

EDITOR-IN-CHIEF, ELIAS BURSTEIN

ASSOCIATE EDITOR-IN-CHIEF, MANUEL CARDONA

EDITORIAL POLICY COMMITTEE

P. AIGRAIN, *Chairman*

P. G. DE GENNES

J. A. KRUMHANS

W. M. LOMER

S. LUNDQVIST

H. SUHL

Y. TOYOZAWA

BOARD OF EDITORS

V. M. AGRANOVICH, *Moscow*

S. ALEXANDER, *Rehovot*

M. BALKANSKI, *Paris*

I. BALSLEV, *Odense*

R. BARRIE, *Vancouver*

G. BASTARD, *Paris*

P. BURLET, *Grenoble*

C. CALANDRA, *Trieste*

M. F. COLLINS, *Hamilton*

P. H. DEDERICH, *Jülich*

A. L. EFROS, *Salt Lake City*

G. FASOL, *Tokyo*

R. FIESCHI, *Parma*

Z. GAN, *Beijing*

C. E. T. GONÇALVES DA

SILVA, *Campinas*

M. GRYNBERG, *Warsaw*

G. GÜNTHERODT, *Aachen*

J. JOFFRIN, *Paris*

H. KAMIMURA, *Tokyo*

L. V. KELDYSH, *Moscow*

B. LUNDQVIST, *Göteborg*

A. H. MACDONALD,
Bloomington

A. A. MARADUDIN, *Irvine*

T. P. MARTIN, *Stuttgart*

E. MOLINARI, *Rome*

A. OKIJI, *Osaka*

A. PINCZUK, *New Jersey*

C. N. R. RAO, *Bangalore*

R. H. SILSBEE, *Ithaca*

J. TAUC, *Providence*

T. TSUZUKI, *Sendai*

D. VAN DYCK, *Antwerp*

P. WACHTER, *Zürich*

F. YNDURÁIN, *Madrid*

A. ZAWADOWSKI, *Budapest*

Institute of Spectroscopy of the Academy of Sciences, U.S.S.R. Akademgorodok, Podolski r-n, Moscow obl. 142092, Russia

Department of Chemical Physics, Weizmann Institute of Science, Rehovot 76100, Israel

Laboratoire de Physique des Solides, Université Pierre et Marie Curie, 4, Place Jussieu, Tour 13-2e Etage, 75230 Paris Cedex 05, France

Fysisk Institut, Odense Universitet, DK-5230 Odense M, Denmark

Department of Physics, University of British Columbia, Vancouver 8, British Columbia, Canada V6T 1W5

Laboratoire de Physique de la Matière, Condensée de l'ENS, 24 rue Lhomond, F-75005 Paris, France

Centre d'Etudes Nucléaires, DRF/SPh - MDN, 85x, 38041 Grenoble Cedex, France

Laboratorio TASC-INFM, Padriciano, 99, 34012 Trieste, Italy

Department of Physics, McMaster University, Hamilton, Ontario, Canada L8S 4M1

Institut für Festkörperforschung der Kernforschungsanlage Jülich, GmbH, 5170 Jülich 1—Postfach 1913, Federal Republic of Germany

Department of Physics, University of Utah, Salt Lake City, Utah 84112, U.S.A.

Research Center for Advanced Science and Technology (RCAST), University of Tokyo, 4-6-1 Komaba, Meguro-ku, Tokyo 153, Japan

Istituto di Fisica, Università degli Studi, 43100 Parma, Italy

Department of Physics, Peking University, Beijing 100871, People's Republic of China

Laboratoire National de Luz Sincrotron/CNPq/MCT, Caixa Postal 6192, Campinas 13081 SP, Brazil

Institute of Experimental Physics, University of Warsaw, 00-681 Warsaw, ul. Hoza 69, Poland

II. Physikalisches Institut, RWTH Aachen, Templergraben 55, D-5100 Aachen, Federal Republic of Germany

Université Paris-Sud, Batiment 510, 91405 Orsay, France

The Science University of Tokyo, Department of Applied Physics, Faculty of Science, 1-3 Kagurazaka, Shinjuku-ku, Tokyo 162, Japan

P. N. Lebedev Institute, Academy of Sciences of the U.S.S.R. Leninskii Prospekt 53, 117924 Moscow, Russia

Institute of Theoretical Physics, Chalmers University of Technology, S-412 96 Göteborg, Sweden

Department of Physics, Indiana University, Bloomington, Indiana 47405, U.S.A.

Department of Physics, University of California, Irvine, California 92717, U.S.A.

Max-Planck-Institut für Festkörperforschung, Heisenbergstrasse 1, 7000 Stuttgart 80, Federal Republic of Germany

CNR Istituto "Corbino", Via Cassia 1216, 00189 Rome, Italy

Department of Applied Physics, Faculty of Engineering, Osaka University, Suita, Osaka 565, Japan

Room 1D - 433, AT&T Bell Laboratories, Murray Hill, New Jersey 07974, U.S.A.

Indian Institute of Science, Bangalore 560012, India

Laboratory of Atomic and Solid State Physics, Cornell University, Ithaca, New York 14853, U.S.A.

Box D, Division of Engineering, Brown University, Providence, Rhode Island 02912, U.S.A.

Department of Physics, Faculty of Science, Tohoku University, Aoba-ku, Sendai 980, Japan

University of Antwerp (RUCA), Groenenborgerlaan 171, B-2020 Antwerp, Belgium

Laboratorium für Festkörperforschung der ETH, CH-8093 Zürich, Hönggerberg, Switzerland

Dpto. de Física de la Materia Condensada, C-III, Universidad Autónoma de Madrid, Cantoblanco, 28049-Madrid, Spain

Institute of Theoretical Physics, Eötvös Loránd University, H-1088 Budapest, Puskin Utca 5 - 7, Hungary

PRODUCTION EDITOR

M. R. JAKEMAN, Production Department, Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K.

SOLID STATE COMMUNICATIONS is a companion journal to THE JOURNAL OF PHYSICS AND CHEMISTRY OF SOLIDS.

Publishing and Advertising Offices: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.; Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Tel.: Oxford (0865) 794141. Fax.: Oxford (0865) 60285.

Copyright © 1992 Pergamon Press Ltd

Published: 4 times per month

Subscription enquiries from customers in North America should be sent to: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A. and for the remainder of the world to: Pergamon Press Ltd, Headington Hill Hall, Oxford OX3 0BW, U.K. Annual institutional subscription rate (1992): £915.00 (US\$1660.00). Two-year institutional rate (1992/93): £1738.00 (US\$3154.00). Sterling prices are definitive. US dollar prices are quoted for convenience only, and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice. Subscription rates for Japan are available on request.

Back Issues: Back issues of all previously published volumes, in both hard copy and on microform, are available direct from Pergamon Press offices.

Second Class Postage Paid at RAHWAY NJ. Postmaster send address corrections to Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, U.S.A.

CONTENTS

APRIL

VOLUME 82, NUMBER 1

1992

General Papers

- | | |
|---|---|
| E. Zschech, L. Tröger, D. Arvanitis,
H. Michaelis, U. Grimm and K. Baberschke | 1 A study of the self-absorption effect in the fluorescence yield of NiO at the oxygen K-edge |
| B. S. Jeong, J. S. Choi, S. K. Chang,
C. H. Chung, H. L. Park, H. J. Lee,
J. I. Lee, H. Lim and S. Y. Kim | 7 \vec{k} -nonconserving transition in heavily doped LPE grown n -type $\text{In}_{0.5}\text{Ga}_{0.5}\text{P}$ |
| C. Castiglioni, M. Gussoni, M. Del Zoppo
and G. Zerbi | 13 Relaxation contribution to hyperpolarizability. A semiclassical model |
| T. Tachikawa, A. Izuoka, R. Kumai, T.
Sugawara and Y. Sugawara | 19 Preparation and properties of double-bridged BEDT-TTF dimer and its perchlorate salt |
| T. Kurihara and S. Tanigawa | 23 The positron annihilation measurements in Al-0.015 at. % Si and Al-0.03 at. % Ge. Anomaly near the melting temperature |
| F. Mirambet, B. Chevalier, P. Gravereau
and J. Etourneau | 25 Magnetic behaviour of the ternary stannide $\text{UCo}_{1.45 \pm 0.03}\text{Sn}_2$ |
| D. R. Yakovlev, W. Ossau, G. Landwehr,
R. N. Bicknell-Tassius, A. Waag,
S. Schmeusser and I. N. Uraltsev | 29 Two dimensional exciton magnetic polaron in $\text{CdTe}/\text{Cd}_{1-x}\text{Mn}_x\text{Te}$ quantum well structures |

Superconductors and Superconductivity

- | | |
|--|---|
| B. Fisher, C. G. Kuper, G. Koren,
S. Israelit and L. Patlagan | 35 Variable range hopping in $\text{Pr}_{1-x}\text{Ca}_x\text{Ba}_2\text{Cu}_3\text{O}_{7-\delta}$ |
| A. Oshiyama and S. Saito | 41 Linear dependence of superconducting transition temperature on Fermi-level density-of-states in alkali-doped C_{60} |

General Papers (contd)

- | | |
|---|---|
| J. A. Nasser, J. M. Kiat and R. Gabilly | 49 X-ray investigation of magnetostriction in NiBr_2 |
| D. Q. Hu, C. D. MacPherson and
K. T. Leung | 55 Evidence of a dehydrogenation surface reaction of cyclohexene to benzene on $\text{Si}(111) 7 \times 7$ |
| A. Ślebarski, M. Hafez and W. Zarek | 59 Spin fluctuations in $\text{ZrM}_{1.2}\text{Al}_{0.8}$ with transition metal M of the 3d type |
| | i Instructions for Authors on the Preparation of Camera-Ready Manuscripts for <i>Solid State Communications</i> |

General Papers

- | | |
|---|--|
| J. L. Soubeyroux, J. M. Réau, M. Wahbi,
J. Sénégas and Suh Kyung Soo | 63 Neutron diffraction investigation of the $\text{Ba}_{1-x}\text{Bi}_x\text{F}_{2+x}$ solid solution |
| J. Ortiz-Saavedra, F. Aguilera-Granja and
J. L. Morán-López | 71 Phase transitions in layered magnetic structures |
| A. W. Overhauser | 75 Conversion of optical transitions from forbidden to allowed by dynamic shell polarization |
| J. Viehland, S. Lin, B. J. Feldman,
K. Kilgore and M. T. Jones | 79 Luminescence study of amorphous hydrogenated carbon grown with varying self-bias voltages |
| T. M. Schmidt and A. Fazzio | 83 Many-electron effects on the structural properties of <i>sp</i> impurities in semiconductors |
| C. A. dos Santos and J. de Oliveira | 89 Solubility limit in the tetragonal series of the $\text{Fe}(\text{Ta}_x\text{Nb}_{1-x})_2\text{O}_6$ system |

Superconductors and Superconductivity

- | | |
|--|--|
| A. Caneiro, M. Vallet-Regí, J. Ramírez,
P. Crespo and J. M. González-Calbet | 95 Stability range and T_c variation of superconducting $\text{Bi}_{1.92}\text{Sr}_{1.89}\text{Ca}_{1.04}\text{Cu}_2\text{O}_y$ |
| H. Yamochi, T. Nakamura, T. Komatsu,
N. Matsukawa, T. Inoue, G. Saito, T. Mori,
M. Kusunoki and K-i. Sakaguchi | 101 Crystal and electronic structures of the organic superconductors, $\kappa\text{-(BEDT-TTF)}_2\text{Cu(CN) [N(CN)}_2\text{]}$ and $\kappa'\text{-(BEDT-TTF)}_2\text{Cu}_2(\text{CN})_3$ |
| B. Mitrović | 107 Why do the self-energy effects appear in the elastic tunneling conductance? |
| H. Kadomatsu, J. Sakurai, J. Sugamoto and
H. Fujiwara | 111 Pressure-induced superconductivity in TbGa_6 and DyGa_6 |

General Papers (contd)

- | | |
|--|---|
| D. Chattopadhyay and P. C. Rakshit | 117 Intersubband absorption in (Hg, Cd)Te quantum wells |
| Hong-Shuo Li and J. M. Cadogan | 121 Variation of crystal-field coefficients with carbon content in the $\text{Sm}_2\text{Fe}_{17}\text{C}_{3-\delta}$ series of compounds |
| S. Kashida, K. Nakamura and S. Katayama | 127 Ferroelectric phase transition in monoclinic TlS |
| Sung Joo Hong, Choochun Lee, Jin Jang
and W. Paul | 131 Direct evidence of geminate recombination in hydrogenated amorphous silicon at low temperature |
| I. G. Lang, S. T. Pavlov and
A. V. Prokhorov | 135 The finite volume of the electron-hole pair and exciton formation rate in polar semiconductors |
| S. Marklund and Wang Yong-Liang | 137 Energy level calculations of the reconstructed 90° partial dislocation in silicon |

CONTENTS**General Papers**

- | | |
|--|---|
| R. Feyerherm, F. J. Litterst, V. Burkhardt | 141 Mössbauer studies of the vibrational dynamics of glassy |
|--|---|

- and O. Nuyken
- N. I. Kulikov and M. V. Magnitskaya
- F. De Luca, N. Luger, B. C. De Simone and B. Maraviglia
- H. Tajima, S. Ikeda, A. Kobayashi, H. Kuroda, R. Kato and H. Kobayashi
- A. S. Carrico and R. E. Camley
- polymers containing ferrocene
- 147 Ferromagnetic instability in the system $Y(Fe_{1-x}Ni_x)_2$
- 151 Solid state nuclear spin mapping by rotary saturation
- 157 Magnetoresistance of α - $Et_2Me_2N[Ni(dmit)_2]_2$ salt
- 161 Size and interface effects in the phase transitions of antiferromagnetic superlattices

Superconductors and Superconductivity

- Gu Zhennan, Qian Jiuxin, Jin Zhaoxia, Zhou Xihuang, Feng Sunqi, Zhou Wensheng and Zhu Xing
- K. Ichimura, K. Nomura, F. Minami and S. Takekawa
- T. Mori, K. Kato, Y. Maruyama, H. Inokuchi, H. Mori, I. Hirabayashi and S. Tanaka
- D. B. Romero, C. D. Porter, D. B. Tanner, L. Forro, D. Mandrus, L. Mihaly, G. L. Carr and G. P. Williams
- H. Kaga and T. Saikawa
- 167 Superconductivity in Sn-doped C_{60}
- 171 STM study of the electronic density of states in the superconducting phase of $Bi_2Sr_2CaCu_2O_8$
- 177 Structural and physical properties of a new organic superconductor, $(BEDT-TTF)_4Pd(CN)_4H_2O$
- 183 On the phenomenology of the infrared properties of the copper-oxide superconductors
- 189 Origins of the anomalous doping effects of the Hall constants of $La_{2-x}Sr_xCuO_4$ and $Nd_{2-x}Ce_xCuO_{4-y}$

General Papers (contd)

- H. Gollisch, D. Meinert, E. Tamura and R. Feder
- M. I. Bartashevich, T. Goto, M. Yamaguchi, I. Yamamoto and A. V. Andreev
- J. Bera
- 197 Electron-hole scattering in photoemission
- 201 Thermal expansion and high field magnetization of a single crystal γ -phase hydride $YCo_3H_{3.9}$
- 205 Structure analysis of β' -alumina in syntaxy with β -alumina by two-stage X-ray powder diffractometry

APRIL

VOLUME 82, NUMBER 4

1992

CONTENTS**General Papers**

- Nguyen Minh Hong, Phan Ngoc Minh and Nguyen Phu Thuy
- D. Israël, F. Callens, P. Clauws and P. Matthys
- Y. Vaills, Y. Luspain, G. Hauret, B. Côté and F. Gervais
- 211 On the magnetic properties of the $Y_{1-x}Gd_xCo_4B$ compounds
- 215 The spin Hamiltonian of thermal donors in germanium
- 221 Elastic properties of sodium calcium silica glasses by Brillouin scattering

H. D. Fuchs, C. H. Grein, M. Cardona,
W. L. Hansen, K. Itoh and E. E. Haller

225 Isotopic disorder-effects on the phonons in germanium

A. Twardowski, D. Heiman, Y. Shapira,
T. Q. Vu and M. Demianiuk

229 Raman spectroscopy in $\text{Cd}_{1-x}\text{Fe}_x\text{S}$: iron energy levels and spin-flip Raman scattering

P. Wetzel, C. Pirri, P. Paki,
J. C. Peruchetti, D. Bolmont and
G. Gewinner

235 Experimental band structure and Fermi surface of a two-dimensional Er silicide on $\text{Si}(111)$

Superconductors and Superconductivity

F. G. Aliev, V. V. Moshchalkov,
V. V. Pryadun and M. A. Arranz Monge

241 Thermal conductivity of $\text{TmBa}_2\text{Cu}_3\text{O}_x$ and $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$ single crystals in the vicinity of the superconducting transition

S. Ratz, N. Schroeder, R. Böttner,
E. Dietz, U. Gerhardt and Th. Wolf

245 On the observation of the superconducting gap and the sharp 1 eV structure in angle resolved photoelectron spectra of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ single crystals

S. Morita, A. A. Zakhidov and K. Yoshino

249 Doping effect of buckminsterfullerene in conducting polymer: change of absorption spectrum and quenching of luminescence

B. L. Altshuler and L. B. Ioffe

253 3D correlations in high T_c copper oxides

General Papers (contd)

A. D. Bykhovskii, I. P. Ipatova and
A. A. Maradudin

261 The influence of surface vibrations on the equilibrium doping of a semiconductor

I. V. Ostrovskii and O. A. Korotchenkov

267 Characterization of unstable point defects in crystals

F. L. Galeener, D. B. Kerwin, A. J. Miller
and J. C. Mikkelsen Jr

271 Nonlinear X-ray production of defect spins in vitreous SiO_2 : the roles of creation and activation

M. Szafranski, P. Czarnecki, A. Katrusiak
and S. Habrylo

277 DTA investigation of phase transitions in 1,3-cyclohexanedione under high pressures

Y. H. Jang, C. Lee, B.-G. Yoon and
H. R. Park

283 Light-induced defect generation in hydrogenated amorphous silicon under the constant photocurrent conditions

Y. Roussigné, R. Farhi, C. Dugautier and
J. Godard

287 A Raman study of both phases of barium metaborate (BBO)

M. Taut and K. Sturm

295 Plasmon dispersion constant of the alkali metals

MAY

VOLUME 82, NUMBER 5

1992

CONTENTS

General Papers

S. Matsuzaki, T. Hiejima and M. Sano

301 Pressure-induced neutral-ionic transition in a 2:1 charge transfer crystal of tetrathiafulvalene and iodanil, $(\text{TTF})_2\text{IA}$

D. N. Mirlin, I. A. Merkulov, V. I. Perel',
I. I. Reshina, A. A. Sirenko and R. Planel

305 Magnetic field enhancement of Raman scattering on folded acoustic phonons in GaAs-AlGaAs superlattice

Chu-Xin Chen and N. E. Bickers

311 Numerical solution of parquet equations for the Anderson impurity model

- P. Dyreklev, G. Gustafsson, O. Inganäs and H. Stubb 317 Aligned polymer chain field effect transistors
- M. Miglierini and J. Sitek 321 Mössbauer study of the spin orientation along the length of the amorphous FeCrSiB ribbon
- A. Othonos, H. M. van Driel, J. F. Young and J.-M. Baribeau 325 Free carrier and lattice-heating-induced changes to the reflectivity of epitaxial GeSi alloys following picosecond pulse excitation
- D. Nguyen Manh, G. Trambly de Laissardiere, J. P. Julien, D. Mayou and F. Cyrot-Lackmann 329 Electronic structure and hybridization effects in the compounds Al_2Ru and Ga_2Ru
- S. Nomura and T. Kobayashi 335 Exciton-LA and -TA phonon couplings in a spherical semiconductor microcrystallite
- E. Simoen and C. Claeys 341 Substrate current characteristic of Si N- and PMOST's at 4.2 K
- E. J. W. Lam, P. T. Beurskens and S. van Smaalen 345 Scaling of X-ray diffraction intensities for crystals with a one-dimensional, incommensurate, displacive modulation
- O. J. Żogał, B. Nowak and K. Niedźwiedź 351 ^{91}Zr Knight shift anisotropy in tetragonal ZrH_2
- F. Weitzer, K. Hiebl and P. Rogl 353 Magnetism and crystal chemistry of compounds $\text{RE}\text{Mn}_{1-x}\text{Sn}_{2-y}$ with RE = La, Ce, Pr, Nd and Sm
- T. Drüsedau, V. Kirbs and H. Fiedler 359 Temperature dependent defect density in a-Si:H below its equilibrium temperature
- J. A. B. Saip and V. N. Freire 363 On the coherent tunneling current in semiconductor heterostructures
- G. Huylebroeck, P. Clauws, E. Simoen and J. Vennik 367 DLTS of nickel impurities in germanium
- L. Piraux, K. Amine, V. Bayot, J.-P. Issi, A. Tressaud and H. Fujimoto 371 Transport properties in graphite intercalation compounds with transition metal fluorides

Superconductors and Superconductivity

- S. Han, M. Andersson and Z. Hegedüs 379 Study of the upper critical magnetic field H_{c2} of $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ compounds
- Cheng-Fen Long, Yu Xu, Fan-Xiu Guo, Yu-Liang Li, Duan-Fu Xu, You-Xin Yao and Dao-Ben Zhu 381 Lattice imaging of C_{60} Langmuir-Blodgett films
- J. C. Ho, C. Y. Wu, Y. X. Tian, Y. J. Tang, X. L. Cheng, X. W. Cao and S. H. Liou 385 Pr-substitution effect on superconducting transition temperature of $\text{YbBa}_2\text{Cu}_3\text{O}_{7-\delta}$
- Q. Lin, P. L. Zhang, Z. G. Shen, D. S. Tang, Q. W. Yan, B. R. Zhao, Y. M. Yang, X. G. Qui, S. W. Niu, Y. F. Cheng and Z. X. Cheng 389 Neutron diffraction study of $\text{YBa}_2\text{Cu}_{2.7}\text{Fe}_{0.3}\text{O}_y$
- S. K. Bandyopadhyay, P. Barat, S. Kar, U. De, A. Poddar, P. Mandal, B. Ghosh and C. K. Majumdar 397 Increase in critical temperature of $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_x$ superconductor due to alpha particle irradiation

General Papers

- T. Bręczewski, A. Gómez-Cuevas,
E. H. Bocanegra, J. M. Igartua and
A. R. Arnaiz 401 Ultrasonic and dilatometric study of the ferroelastic phase
transition in $[\text{N}(\text{CH}_3)_4]_2\text{ZnBr}_4$ crystal
- Y. Shimoi and H. Fukutome 407 Coulomb repulsion dependences of SDW solitons and
polarons in the one dimensional Hubbard model—lifting of
degeneracies in solitons and polarons in the strong correlation
regime
- D. Altbir and M. Kiwi 413 Roughening and discreteness effects on the structure of
magnetic layers
- S. N. Rao, Y. P. Reddy and P. S. Rao 419 Spectroscopic studies of manganese doped cadmium maleate
dihydrate
- F. Ferrieu, F. Beck and D. Dutartre 427 Spectroscopic ellipsometry of optical transitions in thin
strained $\text{Si}_{1-x}\text{Ge}_x$ films
-

Superconductors and Superconductivity

- G. Cannelli, R. Cantelli, F. Cordero,
F. Trequattrini and M. Ferretti 433 Mobility and short-range ordering of oxygen in $\text{R}\text{Ba}_2\text{Cu}_3\text{O}_{6+x}$
by anelastic relaxation and possible correlation with the 90 K
and 60 K superconducting phases
- Y. Miyamoto, A. Oshiyama and S. Saito 437 Halogen doping in solid C_{60}
- A. Furrer, P. Fisher, B. Roessli,
G. Petrakovskii, K. Sablina, V. Valkov and
B. Fedoseev 443 Investigation of spin waves in single crystal Bi_2CuO_4 by
inelastic neutron scattering
- T. Sasaki and N. Toyota 447 Magnetic phase diagram of the organic conductor
 $\alpha\text{-(BEDT-TTF)}_2\text{KHg(SCN)}_4$
- M. I. Petrov, S. N. Krivomazov,
B. P. Khrustalev and K. S. Aleksandrov 453 A study of the hysteresis property of the current-voltage
characteristic in high-temperature superconductors
- W. Götz and H. Winter 457 An evaluation of the magnetic susceptibility of $\text{YBa}_2\text{Cu}_3\text{O}_7$
- Y. U. Muzichka, E. A. Goremychkin,
I. V. Sashin, M. Diviš, V. Nekvasil,
M. Nevřiva and G. Fillion 461 Crystal field in Nd_2CuO_4
-

General Papers (contd)

- J. J. Xie, T. Zhang and W. C. Lu 467 Hydrogen chemisorption on metal/oxide composite catalysts
- I. A. Merkulov and V. V. Ponomarenko 471 A new approach to description of phase transitions in spin
systems
- K. Nakamura and M. Kitajima 475 Raman scattering from graphite surface irradiated by
deuterium ions
- Y. Kohori, Y. Noguchi, T. Kohara,
K. Asayama, H. Amitsuka and Y. Miyako 479 ^{29}Si NMR study in $\text{U}(\text{Ru}_{1-x}\text{Rh}_x)_2\text{Si}_2$
- B. Fugiel 483 Critical invariant Q for Rochelle salt

I. Pelant, D. Ohlmann, O. Crégut,
R. L. Aulombard, O. Briot, B. Hönerlage
and R. Lévy

485 Stimulated emission from electron-hole plasmas in MOVPE
grown ZnSe epilayers

E. Puppim, M. Finazzi and F. Ciccacci

489 Ultraviolet inverse photoemission from FeS₂

i Erratum

MAY

VOLUME 82, NUMBER 7

1992

CONTENTS

General Papers

G. Baldacchini, E. Ciaramella,
M. Cremona, G. Messina, R. M. Montereali
and A. Scacco

493 Zero-phonon lines in e^- -irradiated KCl:Ti

D. Gryffroy, R. E. Vandenberghe and
D. Poelman

497 Optical absorption of Ni²⁺(d⁸) and Mn⁴⁺(d³) in some spinel
oxides

S.-R. Eric Yang and G. C. Aers

501 I-V characteristics of quantum dots and rings in a magnetic
field: effect of single-electron charging and discharging

Y. Morioka

505 Optical activity in the metastable state of
Na₂[Fe(CN)₅NO]·2H₂O crystals

P. Vaněk, M. Havránková and J. Hybler

509 Phase transitions in (CH₃)₄NPbBr₃

A. Yu. Tretyakov, H. Takayasu and
S. F. Burlatsky

513 At the edge of a percolation system: half space percolation

A. Ermolieff, S. Marthon, P. Martin,
F. Pierre and M. Dufour

517 Implantation of quartz with high dose titanium ions as studied
by X-ray photoelectron spectroscopy

Superconductors and Superconductivity

K. Hallberg and C. A. Balseiro

523 Phase diagram of the one-dimensional t - J model

V. V. Demidov and N. E. Noginova

527 Modulated radiofrequency and microwave absorption in
superconductors with intrinsic weak links

E. Faulques and R. E. Russo

531 Raman spectra of iodide species in intercalated
IBi₂Sr₂CaCu₂O_{8+δ}

M. L. Kulić and A. Krämer

537 No spiral vortex along c -axis in anisotropic superconductors

M. L. Kulić, A. Krämer and K. D. Schotte

541 Importance of electromagnetic pinning in high T_c
superconductors with long defects

N. H. Hur, Y. K. Park, J. C. Park,
Y. H. Ko and H. C. Lee

547 Synthesis and ¹⁷O NMR characterization of the high T_c phase
in the Bi-Pb-Sr-Ca-Cu-O superconductor

A. Mehdaoui, P. Danesi, D. Bolmont and
B. Loegel

551 Irreversibility line and the appearance of energy dissipations
in inhomogeneous superconductors

N. Sen, A. K. Bandyopadhyay, P. Sen,
U. Tiwari, D. Varandani, V. P. S. Awana
and A. V. Narlikar

555 Effect of ⁵⁸Ni MeV ion irradiation on the resistivity of
Bi_{1.7}Pb_{0.35}Sr₂Ca₂Cu₃O_{10+x} at low ion fluence

H. C. Gupta

559 Analytic solution to the BCS equation for the superconducting
transition temperature

General Papers (contd)

- | | | |
|---|-----|--|
| M. Zalužny | 565 | On the intersubband absorption line width in semiconductor quantum wells |
| K. G. Nakamura, E. Asari and M. Kitajima | 569 | Thermal relaxation of lattice disorder in graphite induced by He ⁺ irradiation |
| C. G. H. Walker, P. K. Hucknall, D. Greig, M. J. Walker, J. Turton, J. A. D. Matthew and D. Norman | 573 | Partial densities of states in amorphous alloys from resonant photoemission and Cooper minima |
| I. Dzyaloshinskii | 579 | External magnetic fields of antiferromagnets |
| S.-J. Oh, S. Suga, Y. Saito, A. Kakizaki, T. Ishii, M. Taniguchi, A. Fujimori, T. Miyahara, H. Kato, A. Ochiai, T. Suzuki and T. Kasuya | 581 | Photoemission and BIS study of Ce ₃ Bi ₃ and CeBi _{0.7} Te _{0.3} |

MAY

VOLUME 82, NUMBER 8

1992

CONTENTS**General Papers**

- | | | |
|--|-----|--|
| S. Masuda, H. Ishii and Y. Harada | 587 | Observation of Auger transitions across the surface states of Si(1 1 1) - 7 × 7 by metastable atom electron spectroscopy |
| A. Chakravarti, R. Ranganathan and C. Bansal | 591 | Linear and non-linear ac susceptibility of reentrant spin glass system |
| P. Ziesche | 597 | Definition of exchange based on cumulant expansion: correlation induced narrowing of the exchange hole |

Superconductors and Superconductivity

- | | | |
|---|-----|--|
| Y. Akahama, M. Kobayashi, H. Kawamura, H. Shinohara, H. Sato and Y. Saito | 605 | Electrical resistance of iodine-doped C ₆₀ under high pressure |
| A. N. Ionov, A. N. Lachinov, M. M. Rivkin and V. M. Tuchkevich | 609 | Low-resistance state in polydiphenylenephthalide at low temperatures |
| J. P. Carbotte and R. Akis | 613 | A large isotope effect is consistent with a mainly electronic mechanism in the oxides |
| S. Martinez, A. Zwick, M. A. Renucci, R. Enjalbert and P. Millet | 619 | Raman spectroscopy of some {M}Ba ₂ Cu ₃ O _{7-δ} "cocktails" |
| J. Konstantinović, G. Parette and A. Menelle | 627 | Kinetic of the atoms of a unit cell YBa ₂ Cu ₃ O _{6+x} |

General Papers (contd)

- | | | |
|--|-----|---|
| J. Banys, J. Grigas, V. Valiukenas and K. Wacker | 633 | Microwave dielectric properties of TlSbSe ₂ crystals |
| E. Martins, N. D. Vieira Jr and S. P. Morato | 637 | Identification of Tl ⁰ (1) perturbed centers by excited state optical absorption technique |

i Author Index Nos 1-8

General Papers

- S. A. Dembovsky 641 Jumps of heat capacity at glass transition
- Wenlan Xu 645 The vibrational property of one-dimensional atom chain with generalized Fibonacci sequence
- R. Tenne, V. M. Nabutovsky, E. Lifshitz and A. F. Francis 651 Unusual photoluminescence of porous CdS (CdSe) crystals
- P. Etchegoin and M. Cardona 655 Stress-induced optical activity in the zincblende-type semiconductors
- P. Demkin, Z. Januškevičius and D. Šegžda 661 An empirical rule for energy levels of T^{2+} ions of transition metals in compounds $A^{III}B^V$ and $A^{II}B^{VI}$

Superconductors and Superconductivity

- V. V. Aleksandrov, T. S. Velichkina, I. V. Vodolazskaya, V. I. Voronkova, I. A. Yakovlev and V. K. Yanovskii 669 Hypersound studies of the electron doped $Ln_{2-x}Ce_xCuO_4$ and hole doped $La_{2-x}M_xCuO_4$ high- T_c single crystals
- T. K. Dey and H. K. Barik 673 Influence of density of $Bi_{1.6}Pb_{0.4}Sr_2Ca_2Cu_3O_x$ superconducting pellets on their temperature dependence of thermal conductivity
- Weiyi Zhang, Hang Zheng and K. H. Bennemann 679 Madelung energies, force constants, and low energy phonon density of states for K_3C_{60}
- A. K. Pradhan, S. J. Hazell, J. W. Hodby, C. Chen and B. M. Wanklyn 685 Observation of Lorentz force-independent dissipation and vortex-glass phase in single crystal $Bi_2Sr_2Ca_1Cu_2O_y$

General Papers (contd)

- R. von Helmolt, L. Haupt, K. Bärner and U. Sondermann 693 Metal-semiconductor-transition and spin-glass properties of $La_{(2-x)/3}Ba_{(1+x)/3}Mn_{1-x}Cu_xO_3$
- M. Mostefa, S. Boutiche and M. Khodja 697 The validity of the VRH Mott law at both ends of the low temperature range ($T \leq 300$ K)
- T. Abbas, Y. Khan, M. Ahmad and S. Anwar 701 X-ray diffraction study of the cation distribution in the Mn-Zn-ferrites
- K. Wakamura 705 Correlation among the transition and melting temperatures and dielectric parameters in some fast ionic conductors
- Z. H. Lu, J. Y. Fang, L. Wang, Z. L. Chen, S. J. Xiao and Y. Wei 711 Ultrathin conductive films prepared by pyrolysis of photosensitive polyimide Langmuir-Blodgett films
- S. K. Saha and D. Chakravorty 715 Inhomogeneous conductor model for relaxation behaviour in oxide glasses
- M. El-Said and M. Tomak 721 Photoionization of impurities in quantum wells
- S. Kumar, R. Arora and A. Kumar 725 Space charge limited conduction in $a\text{-Se}_{100-x}\text{Te}_x$

- | | |
|---|---|
| I. F. Itskovich and R. S. Sorbello | 729 Electromigration in mesoscopic systems with current concentration |
| I. Vergara, E. Camarillo, J. A. Sanz-García, J. García Solé, F. Jaque, A. Monteil and G. Boulon | 733 Radiative energy transfer from Cr^{3+} to Nd^{3+} in LiNbO_3 : Nd, Cr |
| P. P. Paskov | 739 Carrier-induced change in the refractive index of $\text{InAs}_{1-x}\text{Sb}_x$ |
| C. L. Wang | 743 Surface effect on ferroelectric domain structure |
| Yng-Huey Jeng and Jiang-Tsu Yu | 745 The electron paramagnetic resonance spectrum of the $[\cdot\text{N}(\text{CH}_3)_3]^+$ radical in γ -irradiated $[\text{NH}(\text{CH}_3)_3]_2\text{SnCl}_6$ crystals |

JUNE

VOLUME 82, NUMBER 10

1992

CONTENTS

General Papers

- | | |
|---|---|
| E. X. Ping and V. Dalal | 749 Electron-hole quantum-confined states affected by point charge in semiconductor crystallite |
| M. A. Pimenta, S. L. A. Vieira, F. O. V. Letelier, N. L. Speziali and M. S. Dantas | 755 Ionic conductivity in $\text{LiK}_{0.9}\text{Na}_{0.1}\text{SO}_4$ single crystals |
| D. R. Khokhlov, I. I. Ivanchik, A. de Visser and A. V. Nikorich | 759 Electron localization in $\text{Pb}_{1-x}\text{Sn}_x\text{Te}$ (In) in high magnetic field |
| J. A. Holyst, W. Baltensperger and J. S. Helman | 763 Influence of dry magnetic friction on the ferromagnetic resonance |
| A. Amato, W. Bührer, A. Grayevsky, F. N. Gygax, A. Furrer, N. Kaplan and A. Schenck | 767 Magnetic excitations in single crystal PrNi_5 |

Superconductors and Superconductivity

- | | |
|---|--|
| A. Mariño and J. E. Rodríguez | 775 Thermoelectric power of bulk and thin film bismuth high T_c superconductors |
| G. Sparn, J. D. Thompson, P.-M. Allemand, Q. Li, F. Wudl, K. Holczer and P. W. Stephens | 779 Pressure dependence of magnetism in C_{60}TDAE |
| Y. Maniwa, K. Mizoguchi, K. Kume, K. Tanigaki, T. W. Ebbesen, S. Saito, J. Mizuki, J. S. Tsai and Y. Kubo | 783 ^{133}Cs NMR in C_{60} superconductors: $\text{Cs}_x\text{Rb}_{3-x}\text{C}_{60}$ ($x = 1, 2$) |
| J. I. Castro and A. López | 787 Symmetries of superconductor micronetworks |
| B. B. Krichevstov, V. V. Pavlov, R. V. Pisarev and A. B. Sherman | 791 Magnetic circular dichroism in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$ superconducting thin films |

General Papers (contd)

- | | |
|--|---|
| J. E. Greedan, J. Avelar and M. A. Subramanian | 797 Ferromagnetic correlations in the highly frustrated, spin-glass-like, pyrochlore oxide $\text{Y}_2\text{Mn}_2\text{O}_7$, a neutron scattering study |
|--|---|

- | | |
|---|--|
| L. P. Sosman and T. Abritta | 801 Optical spectroscopy of $\text{MgGa}_2\text{O}_4:\text{Co}^{2+}$ |
| A. S. B. Sombra | 805 Optical bistability and nonlinear switching in CdSSe microcrystallite-doped glass |
| A. Stesmans | 809 New isotropic defect in as-oxidized thermal (111)Si/SiO ₂ revealed by electron spin resonance |
| A. H. El-Sayed | 815 ESR relaxation in metallic spin-glasses |
| H. C. Lin, M. C. Lee, S. S. Lin and Y. S. Huang | 821 Raman spectra of the mixed crystals $\text{RuS}_x\text{Se}_{2-x}$ |
| Y. Trudeau, A. Caillé, M. Poirier and J.-G. Demers | 825 Compressible classical Heisenberg chain in a magnetic field: the sound velocity |
| A. K. Geim, V. I. Falko, S. V. Dubonos and I. V. Grigorieva | 831 Single magnetic flux tube in a mesoscopic two-dimensional electron gas conductor |
| M. Venkateshwarlu and T. Bhaskar Rao | 837 ESR study of vanadyl ion in tripotassium citrate |

JUNE

VOLUME 82, NUMBER 11

1992

CONTENTS

General Papers

- | | |
|---|--|
| Y. T. Tseng, G. X. Tessema, M. J. Skove, M. Potel and P. Gougeon | 841 Metal to non metal transition in $\text{Ti}_2\text{Mo}_6\text{Se}_6$ under uniaxial stress: a study of the thermopower |
| B. Arnscheidt, S. Müller, J. Pelzl and K.-H. Höck | 845 Concentration dependence of deuterium induced phase transitions in $(\text{NH}_4)_2\text{TeCl}_6$ |
| W. Bensch, J. Koy and W. Biberacher | 851 Crystal structure and electrical properties of $\text{Ti}_{0.72}\text{V}_6\text{Se}_{6.45}\text{P}_{1.55}$ |
| P. Fischer, G. Schütz, S. Scherle, M. Knülle, S. Stähler and G. Wiesinger | 857 Experimental study of the circular magnetic X-ray dichroism in Ho-metal, $\text{Ho}_3\text{Fe}_5\text{O}_{12}$, $\text{Ho}_6\text{Fe}_{23}$ and $\text{Ho}_2\text{Co}_{17}$ |
| S. Ossicini and F. Bernardini | 863 Fermi-level pinning and interface states at Pb-Si(111) interface |
| M. J. Hagmann | 867 Transit time for quantum tunneling |
| A. H. Kadikova, Yu. V. Ruts, N. V. Ershov and A. L. Ageev | 871 Some results of regular algorithm applying in the EELFS method |
| Shin-Puu Jeng and V. E. Henrich | 879 Interference between $3d \rightarrow 3d$ electron-exchange transitions and interband excitations in $\text{MnO}(100)$ |

Superconductors and Superconductivity

- | | |
|--|---|
| S. L. Raghavan, C. Schlenker and G. V. Subba Rao | 885 Normal state and superconducting properties of $\text{Bi}_2\text{Sr}_2\text{Ca}_{1-x}\text{Ho}_x\text{Cu}_2\text{O}_y$ compounds |
| Y. Koike, A. Kobayashi, T. Kawaguchi, M. Kato, T. Noji, Y. Ono, T. Hikita and Y. Saito | 889 Anomalous x dependence of T_c and possibility of low-temperature structural phase transition in $\text{La}_{2-x}\text{Sr}_x\text{Cu}_{0.99}\text{M}_{0.01}\text{O}_4$ ($M = \text{Ni}, \text{Zn}, \text{Ga}$) |
| N. L. Saini, K. B. Garg, H. Rajagopal and A. Sequeira | 895 Neutron diffraction and Hall effect measurements on Y-Ba-Cu(Mn)-O system |

General Papers (contd)

- | | |
|--|--|
| G. J. Papaioannou, M. J. Papastamatiou and B. Ioannou-Sougleridis | 903 A correlation between optical backgating and photogeneration mechanism in GaAs MESFETs |
| H. Mohan, I. A. Shaikh and R. G. Kulkarni | 907 Mössbauer and magnetization study of the mixed spinel $\text{CoFe}_{2-x}\text{Cr}_x\text{O}_4$ |
| A. Gordon and T. Salditt | 911 Field induced motion of domain walls in uniaxial ferromagnets and ferroelectrics |
| Jin Han-min, Zhao Tie-song, Yan Yu and Han Xiu-feng | 915 Abnormal magnetic properties of the Nd ion in $\text{Nd}_x\text{Y}_{1-x}\text{Co}_5$ compounds |
| S. O. Gladkov | 919 On heat conductivity of amorphous substances in terms of free volume modelling (jump-like heat conductivity) |
| C. Brotzeller, R. Geick, P. Marchukov, E. G. Rudashevsky and A. M. Balbashov | 923 Magnetic excitations in dicalcium ferrite |

JUNE

VOLUME 82, NUMBER 12

1992

CONTENTS**General Papers**

- | | |
|--|---|
| G. González de la Cruz, G. Contreras-Puente, F. L. Castillo-Alvarado, C. Mejía-García and A. Compaan | 927 Raman scattering by phonons in heavily doped semiconductors |
| A. de Andres, J. L. Martinez, R. Saez-Puche and A. Salinas-Sanchez | 931 Vibrational study of R_2BaNiO_5 ($\text{R} = \text{Y, Ho, Er or Tm}$), NiO_6 one-dimensional chains, and $\text{Tm}_2\text{BaNiO}_5$, NiO_5 pyramids |
| J. Chaboy, J. Garcia and A. Marcelli | 939 New method for comparison of EXAFS spectra at the L edges: application to the theoretical and experimental L_1 and $\text{L}_{2,3}$ edges of barium in BaF_2 |
| Xiaoguang Wu and S. E. Ulloa | 945 Electronic levels and collective excitations in a two-dimensional system with a spatial magnetic field modulation |
| Weikun Ge, W. D. Schmidt, M. D. Sturge, L. N. Pfeiffer and K. W. West | 951 Space group symmetry of the conduction band minimum in very short period GaAs/AlAs superlattices |
| A. A. Druzhinin and A. S. Shcherbakov | 955 Suppression of virtual impurity states decay in metals due to the spin forbidden |
| R. Ionov and D. Nesheva | 959 Characterization of amorphous selenium sublayers in chalcogenide superlattices by Raman scattering |
| A. Dobry, A. Greco, R. Migoni and M. Stachiotti | 963 Cu charge fluctuations and anomalous behaviour in the phonon spectrum of La_2CuO_4 |
| E. Oh, R. G. Alonso and A. K. Ramdas | 969 Magneto-modulation of reflectivity of diluted magnetic semiconductors |

Superconductors and Superconductivity

- | | |
|----------------------------------|--|
| N. Hara, T. Kamiyama, I. Kamata, | 975 Evidence for new phases in Ln-doped $\text{La}_{1.875}\text{Ba}_{0.125}\text{CuO}_4$ |
|----------------------------------|--|

I. Nakahara, H. Hayakawa, E. Akiba and H. Asano	(Ln = Nd, Sm)
I. Hirosawa, K. Tanigaki, J. Mizuki, T. W. Ebbesen, Y. Shimakawa, Y. Kubo and S. Kuroshima	979 Site selective behavior of alkali metals in binary doped C ₆₀
A. A. Zhukov	983 The relaxation of shielding currents for the second kind superconductors

General Papers (contd)	
R. Kuentzler	989 Electronic and lattice properties of martensitic compounds: off-stoichiometric TiNi and doped TiNi
Yu. N. Gartstein	993 Remarks on the negative magnetoresistance of quasi-one-dimensional disordered conductors
R. P. V. Lakshmi, R. Venugopal, D. R. Reddy and B. K. Reddy	997 Preparation and characterization of Mn doped sprayed <i>p</i> -CuInS ₂ films
T. H. Kwon	1001 Thermal properties of NaCl in modified Einstein model
	1005 Author Index Nos 1-12

